

New claims 1 to 9

1. Ophthalmological examination and/or treatment  
5 station with an optical measuring system (312,  
311, 309, 131) and an evaluation unit (317)  
connected to the latter in signalling terms,  
characterized by a modular design with a patient  
10 module (303) which can be positioned directly in  
front of the patient's eye (301) and is arranged  
remote from the evaluation unit (317), with a  
lighting device (305) which is likewise arranged  
remote from the patient module (303) and can be  
15 connected detachably to the patient module (303)  
via an optical fibre (304), the patient module  
(303) having a collimator (310a) which interacts  
with this optical fibre (304) and with which the  
radiation of these fibres (304) can be converted  
20 into a free-space beam (307), with an observation  
device (325a/b, 326a/b, 315; 322, 323) which is  
arranged in the patient module (303) and can  
preferably be connected detachably to the  
evaluation unit (317), with an optical measuring  
25 system (312, 311, 309, 313) having at least one  
further optical fibre (309) and one further  
collimator (310b) with which the radiation from  
the at least one further fibre (309) can be  
converted into a free-space beam (312), the  
30 further collimator (310b) being arranged in the  
patient module (303), and the patient module (303)  
having a fibre coupler part (311) for detachable  
coupling of the at least one further fibre (309)  
belonging to the measuring system (312, 311, 309,  
313).  
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2. Examination and/or treatment station according to  
Claim 1, characterized by a display element (315)  
which is arranged on the patient module (303) and

is connected to the evaluation unit (317) via a detachable electrical signal line (316).

3. Examination and/or treatment station according to  
5 Claim 1 or 2, characterized in that the observation device is designed with an eyepiece (323) arranged in the patient module (303) and with an objective lens (322) for eye examination.
- 10 4. Examination and/or treatment station according to Claim 1 or 2, characterized in that the observation device has an image detecting element (CCD) (326a/b) and an optical unit (325a/b) which  
15 projects an area of the eye to be examined onto an image detecting element (326a/b), the image detecting element (326a/b) and optical unit (325a/b) being arranged in the patient module (303), and, in particular, image detecting element (326a/b) and optical unit (325a/b) are formed in a  
20 pair and at a distance from one another in order to permit stereoscopic observation.
- 25 5. Ophthalmological examination and/or treatment station according to one of Claims 1 to 4, characterized by a holding device for the patient module preferably designed as an aligning device for positioning in front of the patient's eye, and in particular by a geometric design of the patient module in the order of size of a contact lens in  
30 order to take up only a small area of space in front of the patient, the modular design being selected overall such that it takes up the space of just one apparatus but makes it possible to achieve the functionality of a number of different  
35 individual apparatus.
6. Ophthalmological examination and/or treatment station according to one of Claims 1 to 5,

characterized in that the measuring system and/or the observation device is connected to a preferably computer-assisted evaluation unit for the evaluation of measurement data, and the evaluation unit is connected, in particular via a data network, to other data memories containing retrievable data, in order to be able to process the determined and/or evaluated data using the other data.

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7. Ophthalmological examination and/or treatment station according to one of Claims 1 to 6, characterized in that the measuring system has an optical system, principally made up of fibre optics with a short-coherent radiation source (9; 73; 92; 149; 191a-e) and of the Michelson interferometer type, a measuring arm (7; 72; 91; 157b) of the measuring system has an optical fibre and a collimator with which radiation from this fibre can be converted into a free-space beam which can be directed onto a patient's eye as an optically transparent and/or diffusive reflecting object (1, 1', 1''; 147; 205), and a reference arm (5; 67; 86a, 86b; 157a) of the measuring system has a path length variation unit (39; 55; 61; 71; 89; 161v) for modifying the transit time, in which at least two reflectors (31a, 31b; 49, 50; 57a, 57b; 69a, 69b; 87a, 87b; 161a-c; 161a-d) producing a transit time difference are present in the reference arm, and the fibre in the measuring arm is preferably designed such that it can be separated up by means of a fibre coupler.

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8. Ophthalmological examination and/or treatment station according to Claim 7, characterized in that the reflectors (31a, 31b; 49, 50; 57a, 57b; 87a, 87b; 161a-c; 161a-d) of the measuring system are designed such that they reflect the radiation

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incident on them into themselves and preferably  
offset at different depths and in particular are  
movable with one another in order preferably to  
generate the transit time modification and transit  
time difference together.

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9. Ophthalmological examination and/or treatment  
station according to Claim 7 or 8, characterized  
in that the measuring system comprises an optical  
element (35; 61) in the reference arm (5), which  
element covers the reflectors (31a, 31b; 57a, 57b)  
in succession with measurement beams.

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